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Spectrum
Engineering (Firm)
Miles City
Scoria Pit
Project, MT DSL-
AMRB 93-010,
Custer County,

FINAL REPORT

MILES CITY SCORIA PIT PROJECT

MT DSL-AMRB 93-010

Custer County, Montana

SPECTRUM ENGINEERING

MINING & CIVIL ENGINEERS

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FINAL REPORT

MILES CITY SCORIA PIT PROJECT

MT DSL-AMRB 93-010

Custer County, Montana

Site Located in Eastern Montana

T8N, R48E, NW¼NE¼SE¼ (Lots 2 and 3) of Section 36

PLEASE RETURN

November 14th, 1994

Spectrum Engineering
Billings, Montana

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1. INTRODUCTION

1.1 Project Description

The site consists of an open cut on the side of a scoria hill. The project is designed to reduce steep walls along the cut, to reestablish vegetation over the disturbed area and to prevent continued unauthorized excavation of the scoria.

1.1.1 Location and Access

The project site is located in Eastern Montana, 8 miles east of Miles City. The site is in the NW¼NE¼SE¼ (Lots 2 and 3) of Section 36, T8N, R48E, Custer County. It is situated along the south side of U.S. Highway 12, 7-miles east of its junction with Interstate Highway 94. The latitude is 46°24'16" and the longitude is 105°39'27". The scoria pit is found on the 7½ minute USGS quadrangle named Government Hill, Mont. Site location maps are included on the construction bid package drawings in ATTACHMENT 5.

1.1.2 Land Ownership

The site is owned by the following landowner:

Department of State Lands
Dwayne Andrews
Eastern Land Office
321 Main Street
Miles City, MT 59301
Telephone: 406-232-2034

1.1.3 History

Public and private companies have mined scoria from this pit since the late 1870's. Apparently, the old Fort Keogh mined rock and used the pit area as a remount station for mules and horses. Sporadic use by residents of Miles City, adjacent landowners and the Montana Department of Highways continued up to the time the pit was reclaimed. Longtime residents clearly remember active scoria removal in the 1930's and 1940's. Local construction contractors heavily worked the pit over many years. Over time, much scoria has been removed by many different entities who had no authorization to remove the material from State land. In an evaluation form dated 5/30/78, a DSL field representative recommended that the scoria pit be closed so that commercial users, including the State Highway Commission and Custer County, could no longer remove scoria.

The Department of State Lands issued a scoria lease to Clifford G. White in the mid-1950's. This permit expired on 5/8/56 without any record of material removal. From 1970-1973, the State Highway Commission removed and paid for 14,112 cubic-yards of scoria from this pit. The last scoria permit was issued to John Maggli from July 15 to August 31, 1991. Mr Maggli paid an advance royalty on 150 cubic-yards of scoria. However, there is no record that any material was removed or that specified reclamation was completed.

An archeological site located near the top of the hill above the pit was discovered by AMRB personnel. The site suggests that American Indians used the area as a camp site and were probably the earliest exploiters of the scoria rock.

1.2 Project Objectives

The site consists of an open cut on the side of a scoria hill. The project is designed to reduce steep walls along the cut, to reestablish vegetation over the disturbed area and to prevent continued unauthorized excavation of the scoria.

2. RESPONSIBLE PARTIES

2.1 Contractor

The successful low bidder was Scanlan Construction Inc. Their address is shown below:

Scanlan Construction Inc.
701 North Haynes
Route 1 Box 2578
Miles City, MT 59301
Phone: 406/232-6306
MT Contractor's License:

2.2 Reclamation and Engineering Plan

Spectrum Engineering was assigned the responsibility of preparing the reclamation and engineering specifications prior to contractor selection. Topographic surveying and site specific reclamation planning were performed by Spectrum Engineering culminating in preparation of the project bid package.

Spectrum's address is shown below:

Spectrum Engineering
1413 4th Avenue North
Billings, Montana 59101
Phone: 406/259-2412

2.3 Quality Control Inspection

Spectrum Engineering performed the quality control inspection. Bill Maehl and Dave Murja performed project engineering functions and Hank Lowe acted as the construction inspector.

2.4 AMRB Coordination

The AMRB Project Manager was Jack Yates, Montana Department of State Lands, Abandoned Mine Reclamation Bureau.

3. CHRONOLOGICAL LISTING OF EVENTS

3.1 Pre-Bid Conference

A pre-bid conference was held at the site on April 26th, 1994. One public meeting was advertised and held in Miles City. The meeting failed to draw any public attendance.

3.2 Bid Date

The bid opening date was May 5th, 1994 at 2:00 p.m. at the Montana Department of State Lands, Abandoned Mine Reclamation Bureau's office, 1625 Eleventh Avenue, Helena, Montana.

3.3 Lowest Bids

Five (5) qualified bidders responded with bids ranging from $40,760 to $22,240. The Engineers estimate was $30,690. The bid tabulations is presented in ATTACHMENT 1. The bids are summarized below:

BID ITEM	SCANLAN CONST.	M. K. WEEDEN CONST.	BAXTER CONST.	B & M OILFIELD	HALLETT MINERALS
MOBILIZATION	1459.00	864.84	3750.00	1794.00	10600.00
PROVIDE WATER	2.00	20.00	800.00	6.00	1648.00
CLEAR & GRUB	2322.90	2979.99	3738.00	7832.00	4254.20
SALVAGE & REP. SOIL	1425.00	1710.00	1567.50	1472.50	5462.50
UNCLASS EXCAVATION	8022.00	8595.00	5252.50	6685.00	5921.00
RIP & GRADE PIT ROADS	74.38	100.00	275.00	87.50	485.00
REMOVE FENCE	542.50	401.45	542.50	868.00	2875.25
FERT, SEED & MULCH	4000.01	3240.00	4860.00	1701.00	4536.00
PLANT SEEDINGS	300.00	360.00	105.00	1800.00	162.00
FARM FENCE TYPE F-4M	1420.00	1235.40	1562.00	3195.00	923.00
SINGLE PANEL	160.00	220.00	120.00	170.00	360.00
DOUBLE PANEL	600.00	750.00	450.00	830.00	1550.00
FENCE GATE TYPE F-4	150.00	85.00	125.00	120.00	152.00
STRAW BALES	1112.00	1251.00	1070.30	1390.00	1181.50
MPDES PERMIT	650.00	650.00	650.00	650.00	650.00
TOTAL BID	22,239.79	22,462.68	24,867.80	28,601.00	40,760.45

3.4 Contract Award

The contract was awarded to Scanlan Construction Inc. who was low bidder. They also performed all the work except for applying tackifier on the mulch. Tackifier application was awarded separately for $1571.40 as part of the engineering contract. The prime contractor's address is shown under 2.1 Contractor above.

3.5 Contract Agreement

The Contract Agreement was signed May 11th, 1994. The Notice to Proceed was issued on June 27th, 1994 for a starting date of July 5th, 1994. The contractor was to complete the specified work within thirty (30) consecutive calendar days for an anticipated completion date of August 3rd, 1994. However, a Change Order was issued during the construction period extending the time period to August 8, 1994. The scheduled work was completed on August 3rd, 1994. Two additional days were used on October 26th and October 31st, 1994 to seed and plant pine trees during the fall planting period.

3.6 Construction Start-up

A Pre-construction Conference was held at the site on June 23rd, 1994. Ray Bonnell and Art Peaslee from Scanlan Construction suggested that material from the Miles City feedlot could be used to supplement the meager supply of on-site coversoil. This suggestion was incorporated in the construction plan and a Change Order was issued. Scanlan Construction started the job on July 5th, 1994.

3.7 Change Orders

One Change Order was written for this project. A copy of the Change Order is included in ATTACHMENT 2 of this report. The order approved an additional $6500.00 and extended the completion date to August 8, 1994 in order to import and spread 1000 cubic-yards of coversoil at a unit price of $6.50 per cubic-yard.

3.8 Work Stoppages

Scanlan Construction started the job on July 5th, 1994 and spent 23 working days on the project completing all work except seeding on August 4, 1994. Because the earthwork was completed during a non-planting period, the reclaimed area was mulched. On August 5, 1994, H & S Landscaping of Billings was assigned the task of applying tackifier to the mulch. This task was authorized and paid through the engineering contract. On October 26, 1994, Scanlan Construction seeded the reclaimed area with a no-till drill. The contractor returned to the site on October 31, 1994 to plant Ponderosa Pine seedings.

3.9 Requests for Payment

One payment request was made during this project. Pay Request 1 was for the period starting July 5th through August 6th, 1994. The amount completed for this payment request was $24,425.78. Ten-percent of the payment was retained pending final completion. A copy of the Pay Request 1 is included in ATTACHMENT 3.

3.10 Substantial Completion

The date of Substantial Completion was November 1,1994.

3.11 Final Completion and Approval

A field inspection by the AMRB took place on August 4th, 1994. The Final Completion date is one year from the Substantial Completion date or November 1, 1995.

3.12 Final Payment

Final payment was made to the Contractor on November 15th 1994. A copy of the payment request has been included in ATTACHMENT 3.

4. CONSTRUCTION

4.1 Description of Project Plan

The purpose of this project was to reclaim an abandoned scoria pit. The work plan consisted of reducing steep highwall slopes; dismantling existing farm type wire fence; revegetating disturbed areas, planting trees, and erecting a fence around the reclaimed area. In addition, clearing, grubbing and coversoil salvaging was planned for the cut area along the crest of the highwall. Coversoil salvaged from the cut area was to be spread on the recontoured slopes. We also planned to rip the existing pit roads and to use straw bales for erosion control. To prevent the spread of noxious weeds into the project area, the special provisions specified that equipment and vehicles must be cleaned with high pressure water before moving equipment into the project area. Work at the site was to be performed in accordance with an approved Traffic Control Plan.

The highwall area was enclosed with barbed wire fencing. Approximately 665-feet of fence ran along the top of the highwall. This portion of the fence consisted of 4 strands of barbed-wire stapled to rough wooden posts or occasionally to trees. Part of this fence ran along the edge of the highwall and part of it ran through a timbered area. Another 420-feet of fence crossed the pit floor with a 40-foot long segment at one end climbing a steep slope to the top of the highwall. This fence was constructed with 4 strands of barbed-wire on metal posts. There were three single panels in this section of the fence. Each of these sections of fence was to be removed. Posts and wire from the 420-foot lower section of the fence would be salvaged and hauled to the Department of State Lands storage yard in Miles City. Any debris from the fence removal operation would bee hauled to an approved landfill. On-site disposal methods would not be permitted. The State Highway fence and right-of-way marker on the east edge of the project area was not to be disturbed.

Pine trees were scattered over the slopes around the scoria pit. In the area behind the highwall, the pine trees ranged in size from saplings to mature trees. All trees and other vegetation that could interfere with the proposed operation would need to be cleared and grubbed. All salvageable wood was to be limbed, cut into 4 foot sections, and hauled to the Paul O'Dea residence, 1 mile away (located on Powderville Stage at phone 232-2566). We planned to have

all limbs and other wood debris chipped and scattered across the site as mulch. All non-chippable debris (roots, etc.) would be hauled to the county landfill. Again on-site disposal would not be allowed. There were about 40 trees over the 0.89 acre area that was to be cleared and grubbed with 30 of these trees being mature.

After clearing and grubbing, all soil in the cut area would be salvaged and stockpiled for subsequent use. Straw bales were to be placed around the temporary stockpile to contain runoff. After site recontouring had been completed, the soil from the cut area was to be spread evenly over the regraded slopes. Based on an average 8-inch recovery depth, 950 cubic-yards of soil would need to be recovered and stockpiled.

The pre-reclamation highwall slopes were nearly vertical with heights of up to 44 feet. These slopes would be reduced to 3 horizontal to 1 vertical or less by cutting and filling along the highwall and regrading the disturbed area. Based upon the site grading plan (shown on Site Plan Sheet 2 in ATTACHMENT 5), Approximately 8450 cubic-yards of material would be cut from the top of the highwall. An additional 1100 cubic-yards of fill material would excavated from a mound of material on the pit floor. Total fill requirements were estimated as 9550 cubic-yards.

It was estimated that 3.24 acres would require revegetation. Prior to revegetation, all construction roads and pre-existing roads within the pit area were to be ripped and graded. The highwall reduction area, roads, stockpile areas, and areas on the floor of the pit which lacked natural vegetation would be drill seeded, fertilized and mulched. A total of 30 Ponderosa Pine (Pinus ponderosa) seedlings would be planted

Straw bales would be placed along the toe of the reclaimed highwall as an erosion control measure. Written confirmation from the County Agent or Weed Board would be required stating that the straw was "Montana certified weed seed free". The straw bales were to be embedded into the ground a minimum of six (6) inches and would be anchored by two (2) wood stakes driven into the ground at least fifteen (15) inches. Bales placed around the perimeter were to be abutted end-to-end.

The reclaimed area would be enclosed in a Type F-4M farm fence. It was anticipated that 1420 feet of fence would be installed requiring 2 single panels and 5 double panels.

In the event that construction was completed between April 30 and October 15, it was specified that summer erosion control procedures were to be followed:

> *Topsoil shall be uniformly spread over the disturbed areas and the topsoiled areas shall then be either mulched immediately at the rate of 3,000 pounds per acre or a soil stabilizer applied at the manufacturer's recommendation with a hydroseeder. The mulch shall be anchored into the seedbed as specified in the Technical Specifications. A "no-till" drill with "no-till" coulters may be used to seed and fertilize directly into the mulched areas during permanent seeding after the October 15 date. If a "no-till" drill will not be utilized for permanent seeding or the areas are treated with a soil stabilizer, then the seedbed preparation, fertilizing, seeding and mulching procedure must be followed.*

4.2 Major Equipment List

Type	Year	Make/Model	Size/Horsepower	No. on Job
Backhoe/Loader	1982	Case 580 E	75 hp	1
Track Loader	1969	Cat 977	3 yd/150 hp	1
Wheel Loader		International H80	3½ yd/184 hp	1
Excavator	1988	Cat EL200B	3½ yd/148 hp	1
Bulldozer	1957	Cat D8 15A	191 hp	1
Bulldozer	1974	Cat D7F	180 hp	1
Bulldozer	1965	Cat D6B	93 hp	1
Dump Truck	1976	GMC 90	12 yd	1
Tractor/End Dump Trailer		International 4700	20 yd	2
Farm Tractor	1993	Ford 8630	100 hp	1

4.3 Contractor Employees

The contractor had from one (1) to six (6) employees working on the job site on various days. In all ten (10) different employees performed different tasks at the site.

4.4 Construction Activities

Construction was started on 7-5-94. Caution signs were placed on the highway and on the county road. On July 5th and 6th, the fence across the pit floor was removed and the components were hauled to the Department of State Lands storage yard in Miles City. The fence along the highwall was removed on July 5th. The components from the highwall fence were hauled to the county landfill on July 5th and July 13th. A Case 580E backhoe/loader was used to pull fence posts.

On July 6th, the contractor began clearing and grubbing along the highwall. Trees within the highwall reduction area were pushed over with a track loader and were cut into 4-foot lengths. By July 8th, the reduction area had been completely cleared and grubbed. A hydraulic excavator and backhoe/loader were used to dig roots and remove vegetation. Roots and other undesirable materials were hauled to the landfill. Limbs were piled so they could be chipped and used for mulch. However, the contractor determined that he could not chip the limbs due to the amount of dirt that was mixed in the pile. The limbs were hauled to the landfill on August 3rd. The logs were hauled to Paul O'Dea's Residence on July 12th.

Because the a change order was issued to import an additional 1000 cubic-yards of coversoil which had to be mixed with the on-site soil, the contractor decided to move the soil stockpile location from the proposed area on the highwall to the floor of the pit. This stockpile location forced the contractor to load and haul the recovered soil around the pit in a 12-yard dump truck. This operation was started on July 8th and continued until July 13th using a Cat 977 track loader and occasionally a Cat EL200B excavator. By load count 830 cubic-yards of soil was salvaged from the highwall area.

On July 12th, the grading operation began by moving part of the scoria mound on the pit floor.

The remainder of the pile had broken down into a soil and was saved to dress the surface. Highwall reduction began the following day and continued through July 19th. After the highwall had been reduced, two additional days were required for grading and contouring. The contractor use three different bulldozers to complete this task. Rough field observations during construction suggest that site grading required approximately 10,000 cubic-yards of cut.

Scanlan began importing 1000 cubic-yards of steer compost from a Miles City feedlot on July 19th. The material was hauled in two (2) tractor-trailer rigs. Each trailer was equipped with a 20 cubic-yard dump box that could be raised with a telescoping hydraulic hoist. Hauling and stockpiling the material on the pit floor was completed in three days.

On July 21st, the contractor began to mix the steer compost with stockpiled coversoil. Prior to spreading this mixture, he dressed the recontoured area with soil recovered from the scoria pile on the pit floor and ripped the in-pit roads. From July 26th through July 28th, a 3½ cubic-yard wheel loader and a D6 bulldozer were used to mix the steer compost with stockpiled coversoil and spread it over regraded areas.

Site fencing with four-strand barbed-wire on metal posts began on July 29th. Scanlan installed one (1) 16-foot gate, five (5) double panels and two (2) single panels in the next two days. Setting metal posts and stretching wire for 1420 feet of fence took an additional two days or until August 3, 1994.

Fifty-pound straw bales (282 count) for mulch and erosion control were haul to the site on August 3rd. On August 3rd and 4th, the contractor had a crew of 5 to 6 laborers spreading the mulch and installing 139 bales for erosion control. The area which blends into the highway cut was to steep to crimp and had to be tracked with a bulldozer. The rest of the area was crimped with a crimper towed by a Ford 8630 farm tractor.

On August 5,1994, Spectrum Engineering arranged to have H & S Landscaping of Billings mobilize to the site and spray 80-100 pound tackifier with 500 pounds of cellulose fiber on the mulch. At this point, construction was shut-down until the fall planting season.

Scanlan completed the seeding and fertilizing requirements on October 26, 1994. In order to avoid remulching, he borrowed a no-till seed drill from the Soil Conservation Service and used this implement to seed the site with minor disturbance to the mulch. In fact, there was already a fair growth of vegetation over most of the area from seed transported to the site in material from the feedlot. Problems with delivery of the Ponderosa Pine seedings delayed seeding planting until October 31, 1994 when the final work item was completed.

4.5 Quantities Used

All work items except mobilization and acquiring a MPDES permit were bid on a unit price basis. An on-site construction inspector measured items for payment an recorded load counts. Estimated bid quantities were generally verified as being within the accuracy of these field observations and were accepted. No disputes were raised by the Contractor. In the case of salvage and replace topsoil, the amount that would be recovered from the specified area above the highwall was over estimated by about 10 percent. However, contractor was able to salvage additional soil from a pile on the pit floor to make up the difference.

Item	Amount	Unit Cost
CLEAR & GRUB	0.89 ac	$2610.00 / acre
SALVAGE & REP. SOIL	950 cy	$1.50 / cy
IMPORTED STEER COMPOST	1000 cy	$6.50 / cy
UNCLASS EXCAVATION	9550 cy	$0.84 / cy
RIP & GRADE PIT ROADS	0.25 ac	$297.50 / ac
REMOVE FENCE	1085 ft	$0.50 / ft
FERT, SEED & MULCH	3.24 ac	$1234.57 / ac
PLANT SEEDINGS	30	$10.00 / ea
FARM FENCE TYPE F-4M	1440 ft	$1.00 / ft
SINGLE PANEL	2	$80.00 / ea
DOUBLE PANEL	5	$120.00 / ea
FENCE GATE TYPE F-4	1	$150.00 / ea
STRAW BALES	139	$8.00 / ea
MULCH/TACKIFY	3.24 ac	$485.00 / ac

5. PAYMENT REQUESTS

5.1 Pay Request

One pay request was processed for this project as addressed under Section 3.10 above. A copy of this pay request has been included in ATTACHMENT 1.

5.2 Cost per Site

Site Name	Disturbed Acres	Construction Cost/Acre	Total Project Cost
Scoria Pit	3.24	$ 9,355.31	$59,818.07

5.3 Total Project Cost

The construction cost for the project was $30,311,19. Scanlan Construction was awarded the contract and received $28,739.79. Their original bid was $22,239.79 with one change order issued for $6,500.00. An additional $1,571.40 was paid to H & S Landscaping to have cellulose mulch and tackifier sprayed on the site for summer shutdown.

The total engineering cost for the project was $29,506.88. It cost $11,968.94 to complete a topographic survey of the site, attend a public meeting, design a reclamation plan, prepare a draft bid package, modify the package after AMRB review, prepare 30 bid packages, attend a Prebid Conference and respond to bidder questions. The remaining $17,537.94 was spent on construction inspection ($13,449.41), management ($1,701.02), and final report preparation ($2,387.51). An analysis of the engineering costs versus construction costs is presented in ATTACHMENT 4. Total project cost was $59,818.07.

6. PROJECT SUMMARY

6.1 Summary of Project

The project went as scheduled with few modifications. The primary change was the addition of steer compost to supplement the on-site coversoil.

6.2 Site Condition after Completion

The scoria pit has been completely reclaimed and the hazards associated with the steep highwall have been mitigated. The potential for unauthorized mining at this location should be reduced.

6.3 Maintenance or Follow-up

The site should be checked next spring for revegetation success. Because feedlot materials were used to supplement the on-site coversoil, weed control measures might be required. The AMRB should consider planting additional pine seedlings on the regraded slopes.

6.4 Construction Bid Package

Copies of the site plan drawings which were provided in the bid package are located in ATTACHMENT 5 at the back of the final report. These site plan drawings represent the reclamation engineering design (the plan from which the contractors bid the work).

6.5 As-Built Drawings

An As-built drawing is located in ATTACHMENT 6.

7. COMMENTS/SUGGESTIONS

This job was bid very competitively yet the contractor added constructively to the project while completing the origional bid work as planned and at the price quoted. The engineering to construction cost ratio is high because 46-percent of the engineering cost was spent providing full-time construction inspection. Part of this cost is due to the fact that a small local contractor was able to win the bid and needed all of the alloted time to complete the job.

8. PHOTOGRAPHS/SLIDES

8.1 Listing

The description of the photographs taken to document the work performed is found at the back of the final report under ATTACHMENT 7. Picture numbers 7 and 18 show the equipment used to execute the work. Numbers 1 through 6 are views of the site prior to construction. Numbers 65 and 66 are a panaramic view of the site prior to final seeding and tree planting. The numbers on each picture correspond to the listing which precedes the photographs. The two bound final reports contain photographs and the unbound report contains the slides.

ATTACHMENT 1

BID TABULATION

MILES CITY SCORIA PIT PROJECT
CUSTER COUNTY, MONTANA

DSL/AMRB 93-010
May 5, 1994

BID TABULATIONS				ENGINEER'S ESTIMATE		SCANLAN CONSTRUCTION		HALLETT MINERALS			
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization	5000.00	5,000.00	1459.00	1,459.00	10600.00	10,600.00	.00	CD
2.	20	KGAL	Provide Water	25.00	500.00	.10	2.00	82.40	1,648.00	.00	CD
3.	0.89	Acre	Clearing and Grubbing	5500.00	4,895.00	2610.00	2,322.90	4780.00	4,254.20	.00	CD
4.	950	CY	Salvage and replace coversoil	3.00	2,850.00	1.50	1,425.00	5.75	5,462.50	.00	CD
5.	9,550	CY	Unclassified Excavation (cut, fill and grade)	.85	8,117.50	.84	8,022.00	0.62	5,921.00	.00	CD
6.	0.25	Acre	Rip and Grade Pit Roads	600.00	150.00	297.50	74.38	1940.00	485.00	.00	CD
7.	1,085	Foot	Remove Fence	.50	542.50	.50	542.50	2.65	2,875.25	.00	CD
8.	3.24	Acre	Fertilize, Seed and Mulch	1200.00	3,888.00	1234.57	4,000.01	1400.00	4,536.00	.00	CD
9.	30	Each	Furnish and Plant Ponderosa Pine Seedlings	8.00	240.00	10.00	300.00	5.40	162.00	.00	CD
10.	1420	Foot	Farm Fence Type F-4M	1.10	1,562.00	1.00	1,420.00	.65	923.00	.00	CD
11.	2	EA	Farm Fence - Single Panel	90.00	180.00	80.00	160.00	180.00	360.00	.00	CD
12.	5	Ea	Farm Fence - Double Panel	125.00	625.00	120.00	600.00	310.00	1,550.00	.00	CD
13.	1	Ea.	Farm Fence Gate (Type F-4)	100.00	100.00	150.00	150.00	152.00	152.00	.00	CD
14.	139	Bale	Straw Bales for Erosion Control (556 ft length)	10.00	1,390.00	8.00	1,112.00	8.50	1,181.50	.00	CD
15.	1	Ea	MPDES Permit	650.00	650.00	650.00	650.00	650.00	650.00	.00	CD
THIS ROW CONTAINS FORMULAS FOR ADDING UP THE COLUMNS – INSERT ROWS ABOVE THIS ONE IF YOU NEED MORE THAN 7 ITEMS					30,690.00		22,239.79 #1		40,760.45 #5		CD

MILES CITY SCORIA PIT PROJECT
CUSTER COUNTY, MONTANA

DSL/AMRB 93-010
May 5, 1994

BID TABULATIONS				ENGINEER'S ESTIMATE		B & M OILFIELD		M. K. WEEDEN CONSTRUCTION		BAXTER CONSTRUCTION	
Item Number	Estimated Quantity	Unit	Description	Unit Price	Total Price						
1.	1	LS	Mobilization	5000.00	5,000.00	1794.00	1,794.00	864.84	864.84	3750.00	3,750.00
2.	20	KGAL	Provide Water	25.00	500.00	.30	6.00	1.00	20.00	40.00	800.00
3.	0.89	Acre	Clearing and Grubbing	5500.00	4,895.00	8800.00	7,832.00	3348.30	2,979.99	4200.00	3,738.00
4.	950	CY	Salvage and replace coversoil	3.00	2,850.00	1.55	1,472.50	1.80	1,710.00	1.65	1,567.50
5.	9,550	CY	Unclassified Excavation (cut, fill and grade)	.85	8,117.50	.70	6,685.00	.90	8,595.00	.55	5,252.50
6.	0.25	Acre	Rip and Grade Pit Roads	600.00	150.00	350.00	87.50	400.00	100.00	1100.00	275.00
7.	1,085	Foot	Remove Fence	.50	542.50	.80	868.00	.37	401.45	.50	542.50
8.	3.24	Acre	Fertilize, Seed and Mulch	1200.00	3,888.00	525.00	1,701.00	1000.00	3,240.00	1500.00	4,860.00
9.	30	Each	Furnish and Plant Ponderosa Pine Seedlings	8.00	240.00	60.00	1,800.00	12.00	360.00	3.50	105.00
10.	1420	Foot	Farm Fence Type F-4M	1.10	1,562.00	2.25	3,195.00	.87	1,235.40	1.10	1,562.00
11.	2	EA	Farm Fence - Single Panel	90.00	180.00	85.00	170.00	110.00	220.00	60.00	120.00
12.	5	Ea	Farm Fence - Double Panel	125.00	625.00	166.00	830.00	150.00	750.00	90.00	450.00
13.	1	Ea.	Farm Fence Gate (Type F-4)	100.00	100.00	120.00	120.00	85.00	85.00	125.00	125.00
14.	139	Bale	Straw Bales for Erosion Control (556 ft length)	10.00	1,390.00	10.00	1,390.00	9.00	1,251.00	7.70	1,070.30
15.	1	Ea	MPDES Permit	650.00	650.00	650.00	650.00	650.00	650.00	650.00	650.00
THIS ROW CONTAINS FORMULAS FOR ADDING UP THE COLUMNS – INSERT ROWS ABOVE THIS ONE IF YOU NEED MORE THAN 7 ITEMS					30,690.00		28,601.00 #1		22,462.68 #2		24,867.80 #3

ATTACHMENT 2

CHANGE ORDERS

CHANGE ORDER

ORDER NO. 1

PROJECT TITLE: Miles City Scoria Pit

MONT·A/E or DSL-AMRB: 93-010

CONTRACT DATE: July 5th, 1994

OWNER: Department of State Lands, Abandoned Mine Reclamation Bureau

CONTRACTOR: Scanlan Construction

Change Orders must be accompanied by an itemized cost breakdown. You are hereby requested to comply with the following changes from the Contract Documents. (Show separate costs for materials, labor, equipment, and miscellaneous. Show percent where applicable.)

ITEM NO.	DESCRIPTION OF CHANGES - ESTIMATED QUANTITIES & UNITS	COST OF CHANGES					TOTAL COST
		MAT'LS.	LABOR	EQUIP.	MISC.	TOTAL UNIT COST	
	Scanlan Construction was requested to provide 1000 cubic yards of coversoil at $6.50/cubic yard. The price included loading; hauling to site; stockpiling; cleaning wood, baling twine and other non-natural debris from the material; thoroughly mixing with on-site coversoil; spreading all coversoil onto areas to be revegetated; and preparing surface for summer erosion control procedures.					6,500.00	6,500.00
	TOTAL COST - MATERIALS, LABOR, EQUIPMENT & MISC.						$6,500.00
	OVERHEAD & PROFIT @ _____%						INC.
	GRAND TOTAL - THIS CHANGE ORDER						$6,500.00

Original Contract Price	$ 22,239.79
Current Contract Price Adjusted by Previous Change Order	$ 22,239.79
Cost this Change Order (+ or -)	+ $ 6,500.00
New Contract Price including this Change Order	$ 28,739.79

The completion date as set forth in the Contract Documents shall be (unchanged, increased, decreased) by three (3) calendar days. The date for completion of all work will be 08/08/1994.

Scanlan Construction completed all work on 8/5/1994 and was issued a summer shut-down until fall seeding can take place after October 15th, 1994. Three days remain under the contract time for revegetation in the fall.

Description and Justification for Change:

Bid item changes described on reverse side are for the addition of coversoil.

The project scope changes the following quantities:

Item No.	Description	Bid Quantity	Change Order #1 Additional Quantity	Total Price
Extra	Provide 1000 cubic yards of coversoil	0 CY	1000 CY	$6,500.00

SURETY CONSENT

The Surety hereby consents to the aforementioned Contract Change Order and agrees that its bond or bonds shall apply and extend to the Contract as thereby modified or amended per this Change Order. The Principal and the Surety further agree that on or after execution of this consent, the penalty of the applicable Performance Bonds or Bonds is hereby increased by $6,500.00 (100% of the Change Order amount) and the penalty of the applicable Labor and Material Bond or Bonds is hereby increased by $6,500.00 (100% of the Change Order amount).

COUNTERSIGNED BY MONTANA RESIDENT AGENT

SURETY

FIRST SECURITY BANK & TRUST OF MILES CITY MT

By: _____ VP

Seal

Recommended by: Spectrum Engineering — William C. MacDo — 8/10/94

Engineer — Date

Accepted by: Scanlan Construction — 8-15-94

Contractor — Date

Approved by: Ray Bonnell — 8-15-94

Owner — Date

Jack O. Yates DSL-AMRB — 8/17/94

ATTACHMENT 3

PAYMENT REQUEST

PAYMENT REQUEST NO. 1

FROM 07/05/1994 TO 08/06/1994

PROJECT TITLE: MILES CITY SCORIA PIT

LOCATION: CUSTER COUNTY MONT A/E or DSL-AMRB: 93-010

NAME OF CONTRACTOR: SCANLAN CONSTRUCTION INC.

ADDRESS: 701 N. HAYNES, ROUTE 1 BOX 2578, MILES CITY, MT 59301

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 22,239.79
Change Order No. 1	$ 6,500.00	
Change Order No.	$	
Change Order No.	$	
Amount of Approved Change Order(s)		$ 6,500.00
TOTAL CONTRACT AMOUNT		$ 28,739.79

Pay Request No.	Amount of Request
1	$ 21,983.20

Total Contract Amount Completed to Date	$ 24,425.78
Less Retainage (10 %)	$ 2,442.58
TOTAL AMOUNT EARNED TO DATE	$ 21,983.20
Less Previous Payments	$ 0.00
AMOUNT DUE THIS PAYMENT	$ 21,983.20
Less 1% Tax	$ 219.83
TOTAL DUE CONTRACTOR	$ 21,763.37

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

SCANLAN CONSTRUCTION
Contractor

By Ray Bonnell

Date 8-15-94

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By William C Moore

Date 8/10/94

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED MINE RECLAMATION BUREAU
Owner

By Jack D. Yates DSL-AMRB

Date

RESP. CNTR. 30145 34507-0005 P
OBJ. EXP. 2121
APPROVAL Vern R Anderson
DATE 8/18/94

Rev. 8/91

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity Completed	Total Quantity Completed to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	$1,459.00	0	1	1	$1,459.00	$1,459.00
2.	Provide Water	20.0 Kgal	$0.10	0	0	0	$0.00	$0.00
3.	Clearing/Grubbing	0.89 Acres	$2,610.00	0	0.89	0.89	$2,322.90	$2,322.90
4.	Salvage/Replace Cover Soil	950 CY	$1.50	0	950	950	$1,425.00	$1,425.00
5.	Unclassified Excav. (cut,fill, & grade)	9,550 CY	$0.84	0	9550	9550	$8,022.00	$8,022.00
6.	Rip/Grade Pit Roads	0.25 Acres	$297.50	0	0.25	0.25	$74.38	$74.38
7.	Remove Fence	1085 FT	$0.50	0	1085	1085	$542.50	$542.50
8.	Fertilizer,Seed,Mulch Fertilize Seed Mulch	3.24 Acres 300 LBS 71.3 LBS 9720 LBS	$1,234.57	0	0	0	$0.00	$0.00
9.	Furnish/Plant Ponderosa Pine	30 Trees	$10.00	0	0	0	$0.00	$0.00
10.	Farm Fence F-4M	1420 FT	$1.00	0	1408	1408	$1,408.00	$1,408.00
11.	Farm Fence - Single Panel	2 EA	$80.00	0	2	2	$160.00	$160.00
12.	Farm Fence - Double Panel	5 EA	$120.00	0	5	5	$600.00	$600.00
13.	Farm Fence - Gate (Type F-4)	1 EA	$150.00	0	1	1	$150.00	$150.00
14.	Straw Bales for Erosion Control	139 Bales	$8.00	0	139	139	$1,112.00	$1,112.00
15.	MPDES Storm Water Discharge Permit	1 EA	$650.00	0	1	1	$650.00	$650.00
	Change Order #1 Imported Coversoil	1,000 CY	$6.50	0	1000	1000	$6,500.00	$6,500.00
	TOTALS						$24,425.78	$24,425.78

PAYMENT REQUEST NO. 2-Final

FROM 08/07/1994 TO 11/01/1994

PROJECT TITLE: MILES CITY SCORIA PIT

LOCATION: CUSTER COUNTY MONT A/E or DSL-AMRB: 93-010

NAME OF CONTRACTOR: SCANLAN CONSTRUCTION INC.

ADDRESS: 701 N. HAYNES, ROUTE 1 BOX 2578, MILES CITY, MT 59301

SUMMARY OF PROJECT STATUS

Amount of Original Contract		$ 22,239.79
Change Order No. 1	$ 6,500.00	
Change Order No. _____	$ _____	
Change Order No. _____	$ _____	
Amount of Approved Change Order(s)		$ 6,500.00
TOTAL CONTRACT AMOUNT		$ 28,739.79

Pay Request No.	Amount of Request
1	$ 21,983.20
2-Final	$ 6,689.02

Total Contract Amount Completed to Date	$ 28,739.79
Less Retainage (0 %)	$ 0.00
TOTAL AMOUNT EARNED TO DATE	$ 28,739.79
Less Previous Payments	$ 21,983.20
AMOUNT DUE THIS PAYMENT	$ 6,756.59
Less 1% Tax	$ 67.57
TOTAL DUE CONTRACTOR	$ 6,689.02

I certify that this claim is correct and just in all respects and that payment or credit has not been received.

SCANLAN CONSTRUCTION
Contractor

By _____

Date _____

RECOMMENDED BY:

SPECTRUM ENGINEERING
Engineer

By _____

Date _____

APPROVED BY:

DEPARTMENT OF STATE LANDS, ABANDONED MINE RECLAMATION BUREAU
Owner

By _____

Date _____

Item No.	Description	Contract Quantity	Contract Unit Price	Previous Quantity Requested	Current Quantity omplete	Total Quantity Complete to Date	Total Contract Amount Completed to Date	Amount Due this Payment
1.	Mobilization	1 LS	$1,459.00	0	0	1	$1,459.00	$0.00
2.	Provide Water	20.0 Kgal	$0.10	0	20	20	$2.00	$2.00
3.	Clearing/Grubbing	0.89 Acres	$2,610.00	0.89	0	0.89	$2,322.90	$0.00
4.	Salvage/Replace Cover Soil	950 CY	$1.50	950	0	950	$1,425.00	$0.00
5.	Unclassified Excav. (cut,fill, & grade)	9,550 CY	$0.84	9550	0	9550	$8,022.00	$0.00
6.	Rip/Grade Pit Road	0.25 Acres	$297.50	0.25	0	0.25	$74.38	$0.00
7.	Remove Fence	1085 FT	$0.50	1085	0	1085	$542.50	$0.00
8.	Fertilizer,Seed,Mulch Fertilize Seed Mulch	3.24 Acres 300 LBS 71.3 LBS 9720 LBS	$1,234.57	0	3.24	3.24	$4,000.01	$4,000.01
9.	Furnish/Plant Ponderosa Pine	30 Trees	$10.00	0	30	30	$300.00	$300.00
10.	Farm Fence F-4M	1420 FT	$1.00	1408	12	1420	$1,420.00	$12.00
11.	Farm Fence - Single Panel	2 EA	$80.00	2	0	2	$160.00	$0.00
12.	Farm Fence - Double Panel	5 EA	$120.00	5	0	5	$600.00	$0.00
13.	Farm Fence - Gate (Type F-4)	1 EA	$150.00	1	0	1	$150.00	$0.00
14.	Straw Bales for Erosion Control	139 Bales	$8.00	139	0	139	$1,112.00	$0.00
15.	MPDES Storm Water Discharge Permit	1 EA	$650.00	1	0	1	$650.00	$0.00
	Change Order #1 Imported Coversoil	1,000 CY	$6.50	1000	0	1000	$6,500.00	$0.00
	TOTALS						$28,739.79	$4,314.01

ATTACHMENT 4

ANALYSIS OF CONSULTANT COSTS INCURRED

ANALYSIS OF CONSULTANT COSTS INCURRED
FOR THE MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU
AMR PROJECT NUMBER: DSL-AMRB 93-010
MILES CITY SCORIA PIT PROJECT

DATE OF PREPARATION: NOV 14TH, 1991

ENGINEERING SERVICE	AMOUNT
DESIGN ENGINEERING:	$11,968.94
CONSTRUCTION INSPECTION:	$13,449.41
PROJECT ADMINISTRATION :	$ 4,088.53
PROJECT ENGINEERING COST:	$29,506.88
CONSTRUCTION AWARDED UNDER DSL-AMRB 93-010:	$28,739.79
SUMMER EROSION CONTROL:	$ 1,571.40
CONSTRUCTION COST:	$30,311.19

PERCENTAGE ENGINEERING FEES TO CONSTRUCTION COST:

DESIGN ENGINEERING/CONSTRUCTION COST	39.49%
CONSTRUCTION ENGINEERING/CONSTRUCTION COST	57.86%
TOTAL ENGINEERING COST/CONSTRUCTION COST	97.35%

REMARKS: Services provided included surveying, engineering and reclamation design, bid document preparation, construction staking, contract administration, quantity accounting, full time construction/reclamation inspection and final report preparation and project close-out.

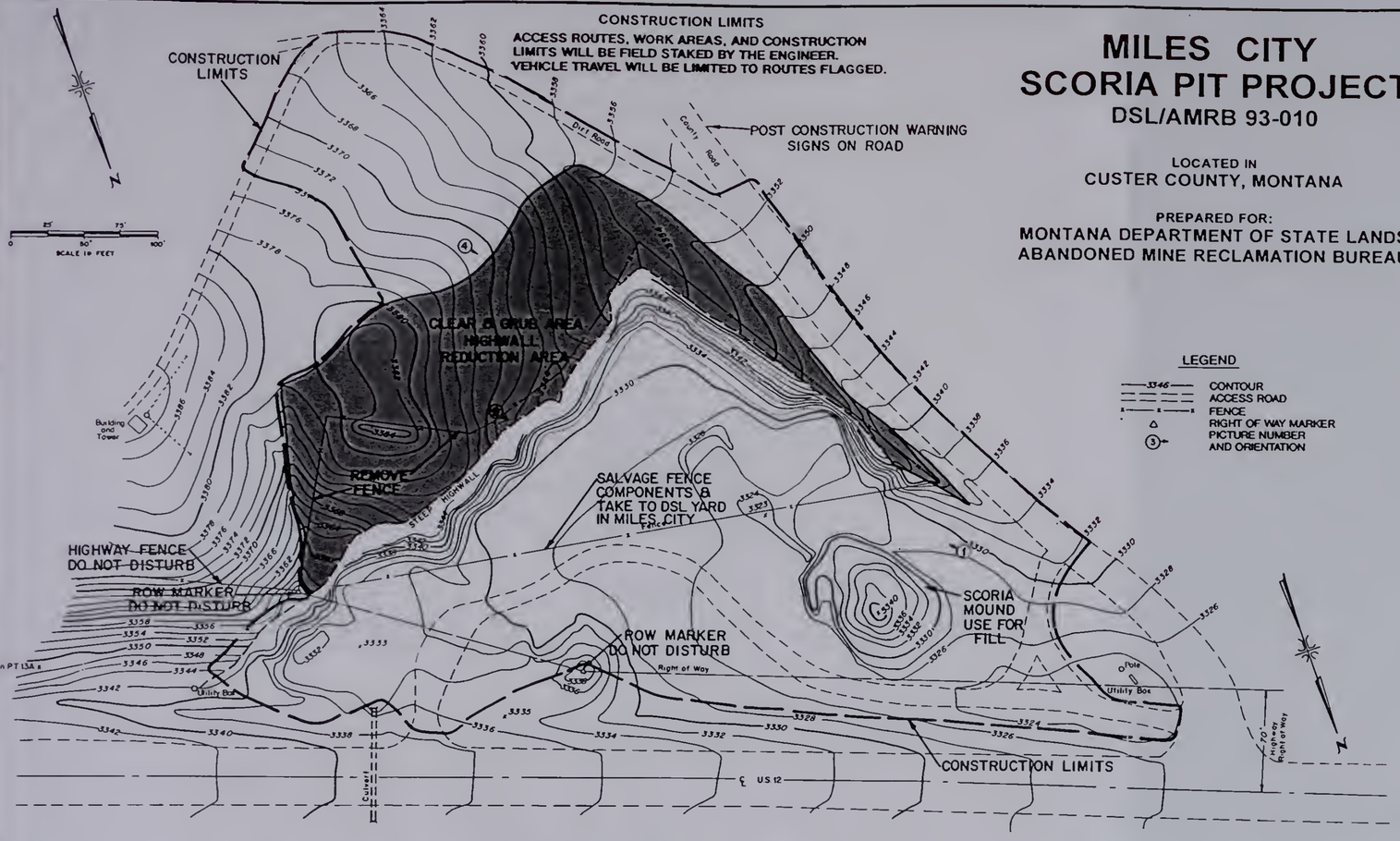
ATTACHMENT 5

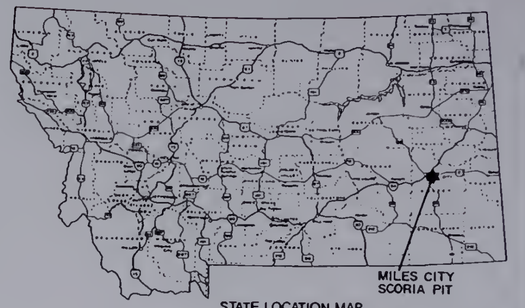
CONSTRUCTION BID PACKAGE DRAWINGS

MILES CITY
SCORIA PIT PROJECT
DSL/AMRB 93-010

LOCATED IN
CUSTER COUNTY, MONTANA

PREPARED FOR:
MONTANA DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU


CONSTRUCTION LIMITS
ACCESS ROUTES, WORK AREAS, AND CONSTRUCTION LIMITS WILL BE FIELD STAKED BY THE ENGINEER. VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED.
CONSTRUCTION LIMITS
POST CONSTRUCTION WARNING SIGNS ON ROAD
Dirt Road
County Road
CLEAR & GRUB AREA HIGHWALL REDUCTION AREA
REMOVE FENCE
SALVAGE FENCE COMPONENTS & TAKE TO DSL YARD IN MILES CITY
HIGHWAY FENCE DO NOT DISTURB
ROW MARKER DO NOT DISTURB
ROW MARKER DO NOT DISTURB
SCORIA MOUND USE FOR FILL
CONSTRUCTION LIMITS
Building and Tower
Utility Box
Culvert
℄ US 12
Right of Way
SCALE IN FEET
LEGEND
CONTOUR
ACCESS ROAD
FENCE
RIGHT OF WAY MARKER
PICTURE NUMBER AND ORIENTATION



STATE LOCATION MAP

LANDOWNER
NE¼SE¼ of Section 36, T8N, R48E

Montana Dept. of State Lands
Eastern Land Office
321 Main Street
Miles City, MT 59301
Phone:406-232-2034

ARCHAEOLOGICAL NOTICE

THERE IS AN ARCHAEOLOGICAL SITE IN THE VICINITY OF THIS SCORIA PIT. THIS SITE WILL BE DELINEATED IN THE FIELD BY THE OWNER AT THE TIME OF CONSTRUCTION. AT NO TIME SHALL THE ARCHAEOLOGICAL SITE OR MATERIALS BE DISTURBED.

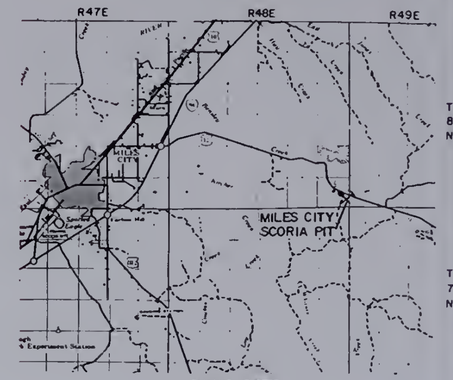
HAZARD NOTICE

MANY POTENTIAL HAZARDS EXIST AT THIS SITE. THE EXTENT OF THESE HAZARDS IS NOT FULLY KNOWN.

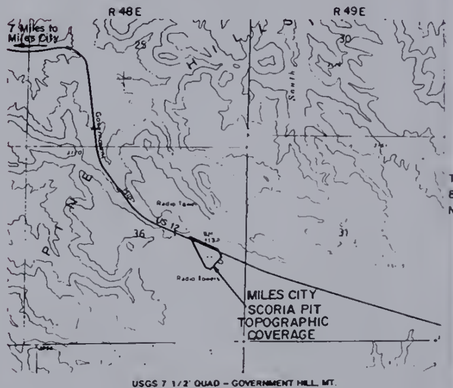
THE CONTRACTOR, SUBCONTRACTORS, AND THEIR EMPLOYEES WILL COMPLY WITH ALL APPLICABLE LOCAL, STATE, AND FEDERAL SAFETY REGULATIONS IN THE PERFORMANCE OF THE REQUIRED WORK. CONTRACTORS AND OTHER PERSONS WORKING AT THIS SITE SHALL BE FULLY RESPONSIBLE FOR APPRISING THEMSELVES OF ANY HAZARDOUS CONDITIONS WHICH MAY EXIST AND SHALL TAKE WHATEVER STEPS ARE NECESSARY TO INSURE THEIR SAFETY AND THE SAFETY OF OTHERS WHILE PERFORMING THEIR DUTIES.

TOPOGRAPHIC MAP PREPARED FROM PLANE TABLE AND ALIDADE SURVEY CONDUCTED IN DECEMBER 1993. THIS TOPOGRAPHY HAS NOT BEEN FIELD CHECKED. ELEVATIONS ARE BASED ON BOUNDARY MARKER ELEVATION ON SITE. NOTE THIS VERTICAL DATUM IS 200 FEET HIGHER THAN INTERPOLATION OF USGS 7½' QUADRANGLE: GOVERNMENT HILL, MT.

ADDITIONAL INFORMATION PERTAINING TO THIS SITE MAY EXIST IN THE DEPARTMENT OF STATE LANDS' FILES OR AT SPECTRUM ENGINEERING'S OFFICE. THIS MATERIAL IS AVAILABLE FOR REVIEW BY ANY INTERESTED PARTY.



VICINITY ACCESS MAP



USGS 7 1/2' QUAD – GOVERNMENT HILL, MT.
SITE LOCATION MAP

PHOTO 1–Looking southeast across pit floor toward highwalls, which are up to 44 feet high. Fences in the foreground and along the highwall must be removed.

PHOTO 3–An aerial view of the scoria pit showing proximity of Highway 12 & the county road. Highwalls will be reduced & regraded to average 3.5H:1V slopes.

PHOTO 2–Standing on the highwall looking northwest toward highwall running along the county road and at the mound of scoria on the pit floor. This mound of material will be excavated and used for backfill.

PHOTO 4–View of stand of timber covering the highwall borrow area. The area will be cleared and grubbed.

ENGINEER'S CERTIFICATE

I HEREBY CERTIFY THAT THE WORK SHOWN ON THESE MAPS AND PLANS WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION.

William C. Maehl
Montana P.E. No. 5274 PE

SITE PLAN AND GENERAL LAYOUT

MILES CITY SCORIA PIT
PRE-RECLAMATION TOPOGRAPHY

SECTION 36, T8N, R48E
CUSTER COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1625 Eleventh Avenue, Helena, Montana 59620

DATE: January 1994
DRAWN BY: DLO
APPROVED BY: DM

REVISIONS		
NO	DATE	BY
1	April 94	DLO

SHEET NO. 1 of 2

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

CUT/FILL ISOPACH

-8 = 8 FEET OF FILL
6 = 6 FEET OF CUT

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES (BMP'S) FOR STORM WATER CONTROL

The Project Name is the Miles City Scoria Pit Project.

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Jack Yates.

This site is located in the NW¼NE¼SE¼ (Lots 2 and 3) of Section 36, T8N, R48E, Custer County. It is situated along the south side of U.S. Highway 12, 7-miles east of its junction with Interstate Highway 94. The scoria pit is visible and directly accessible from the highway.

The construction activity is described in the Work Description. The reclamation construction is estimated to disturb and reclaim 3.24 acres during this project. The purpose of this project is to reduce steep highwalls in an open-cut scoria pit, to reestablish vegetation over the disturbed area and to prevent continued unauthorized excavation of the scoria. The construction activity will include clearing timber, earthwork necessary to reduce and recontour steep highwall slopes, topsoil salvage and replacement, revegetation, tree planting, erecting a fence, and providing water for dust control.

This site is located at the head of Bensley Creek which drains into the Yellowstone River 3-miles NNE of Miles City putting the site 8.5 miles above the Yellowstone River. The disturbance area will be approximately 1000 feet from the nearest drainage channel on Bensley Creek which runs intermittently in this area. However, runoff is not expected to leave the site since the disturbed area naturally drains to the pit floor which forms a shallow basin. Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff include: temporary stabilization practices - mulching and placing of straw bales for erosion control; and permanent stabilization practices - seeding and fertilizing (100% revegetation of the site) and tree planting in selected areas.

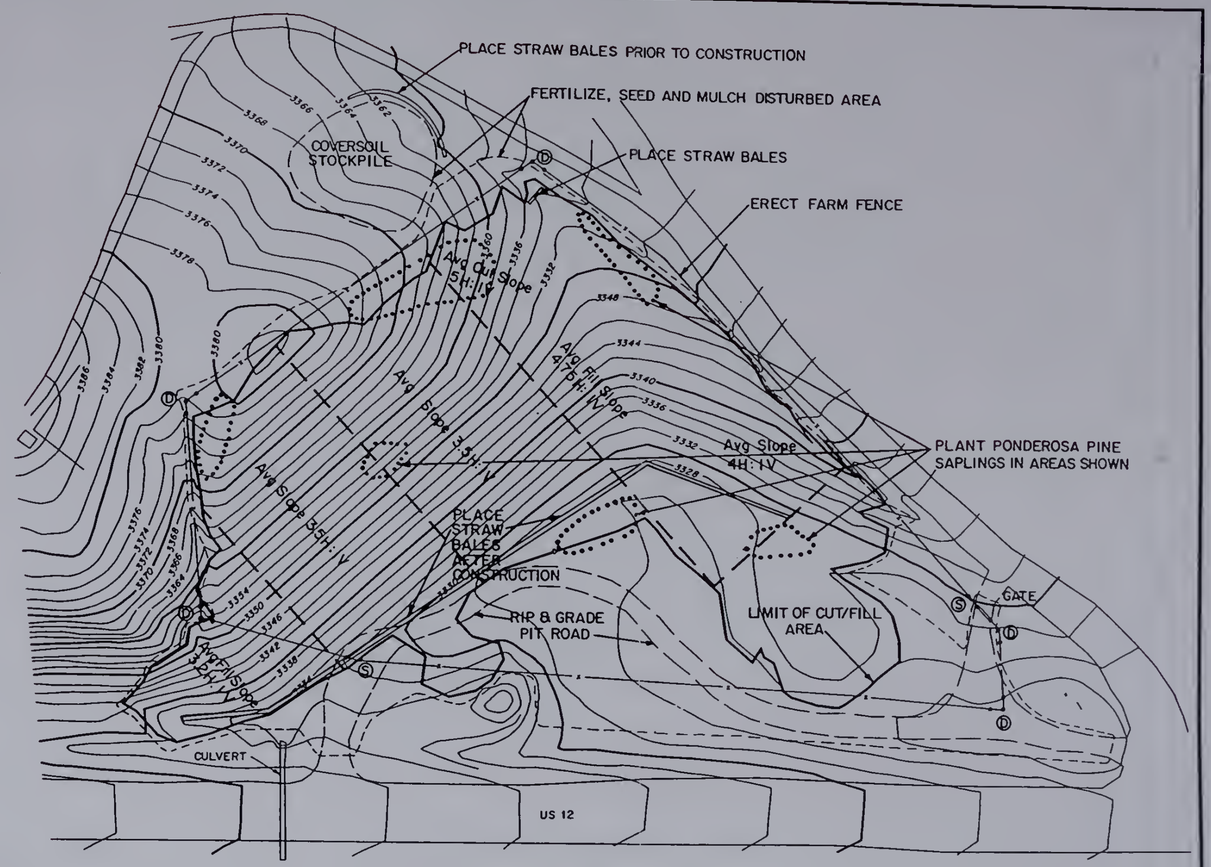
The estimated construction time period will be thirty (30) days from the start of on-site reclamation until final vegetation is completed and the Contractor demobilizes.

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPDES Stormwater Discharge Permit and Erosion Control Plan. Good housekeeping chores will include as a minimum:

1. To prevent tracking of sediment off-site, prior to leaving the site, all vehicles shall be washed down on-site as determined by the Engineer at such a location as to contain all washed sediment on-site;

2. Fuel, oil, grease and other such materials shall be stored in one location in such a manner as to prevent spillage and prevent contamination of the surrounding soil. All materials shall be stored in a bermed plastic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-site for clean up of any spills; and,

3. Fertilizer shall be stored on pallets off the ground or on plastic ground covers and covered with plastic or in other such manner as to prevent spillage and washing from rain water or wind into surrounding soil.



POST RECLAMATION TOPOGRAPHY

SCORIA PIT WORK DESCRIPTION

Remove 665 feet of fence along the top of the highwall and 420 feet of fence on the pit floor. Posts and wire from the 420 foot lower section of the fence will be salvaged and delivered to the Department of State Land's storage yard in Miles City. All debris will the hauled to an approved fandfill.

Clear and grub the highwall borrow area around the scoria pit. All salvageable wood will be limbed, cut into 4 foot sections, and hauled to the Paul O'Dea residence 1 mile away. All limbs and other wood debris will be chipped and scattered across the site as mulch. All non-chippable debris (roots, etc.) must be hauled to the county landfill. On-site disposal will not be allowed. There are about 40 trees on the 0.89 areas that will be cleared and grubbed with 30 of these trees being mature.

Salvage and stockpile coversoil from the cut area. Straw bales (approximately 23) will be placed around the temporary stockpile to contain runoff. After site recontouring has been completed, the coversoil from the cut area will be spread evenly over the regraded slopes. Based on an average 8 inch recovery depth, 950 cubic yards of coversoil will be recovered, stockpiled, and replaced.

Reduce the highwall slopes by cutting and filling along the highwall and regrading the disturbed area. Recontour to the plan shown on the Post Reclamation Topography view of the pit. Approximately 8450 cubic yards of material will be cut from the top of the highwall. An additional 1100 cubic yards of fill material will be excavated from the mound of material on the pit floor. Total fill requirements are estimated to be 9550 cubic yards.

All pre-existing roads within the pit area will be ripped and graded. Scarify the top 12 to 18 inches of the surface. Approximately 0.25 acres of existing road surface will be scarified in the pit floor area.

The highwall reduction area, roads, stockpile areas, and areas on the floor of the pit which lack sufficient natural vegetation will required revegetation. It is estimated that 3.24 acres will be drill seeded (71.3 lbs-pls), fertilized (300 lbs) and mulched (9720 lbs) with a grass hay or straw mulch applied at a rate of 3,000 pound per acre. The mulch shall be anchored by crimping and shall be "Montana Certified Weed Seed Free". Summer erosion control procedures will be followed if construction is performed during non-revegetation time periods (i.e. during the summer). A total of 30 Ponderosa Pine (Pinus ponderosa) seedlings will be planted in the indicated areas (with 10 in³ containerized stock being utilized).

Straw bales (approximately 112 bales) will be placed along the toe of the reclaimed highwall and 4 bales placed in the drainage course northwest of the coversoil stockpile after reclamation.

The reclaimed area will be enclosed in a Type F-4M farm fence. This type fence is a 4-strand wire fence with metal line posts. Approximate locations for fence panels and gate are shown. It is anticipated that 1420 feet of fence will be installed requiring 2 single and 5 double panels.

LEGEND

(D) DOUBLE FENCE PANEL
(S) SINGLE FENCE PANEL

SITE PLAN AND GENERAL LAYOUT

MILES CITY SCORIA PIT
POST-RECLAMATION TOPOGRAPHY

SECTION 36, T8N, R48E
CUSTER COUNTY, MONTANA

STATE OF MONTANA, DEPARTMENT OF STATE LANDS
ABANDONED MINE RECLAMATION BUREAU, RECLAMATION DIVISION
1625 Eleventh Avenue, Helena, Montana 59620

SPECTRUM ENGINEERING
Mining and Civil Engineers
1413 4th Avenue North
Billings, Montana 59101
Phone: 406-259-2412

DATE: January 1994
DRAWN BY DLO
APPROVED BY DM

REVISIONS NO.	DATE	BY
1	April 94	DLO

SHEET NO. 2 of 2

ATTACHMENT 6

AS-BUILT DRAWINGS

FERTILIZE, SEED AND MULCH DISTURBED AREA

PLACE STRAW BALES

ERECT FARM FENCE

Avg. Cut Slope 5H:1V

Avg Slope 3.5H:1V

Avg. Fill Slope 4.75H:1V

Avg. Slope 4H:1V

PLANT PONDEROSA PINE SAPLINGS IN AREAS SHOWN

PLACE STRAW BALES AFTER CONSTRUCTION

RIP & GRADE PIT ROAD

LIMIT OF CUT/FILL AREA

GATE

CULVERT

US 12

N

SCALE IN FEET
1 INCH = 60 FEET

POST RECLAMATION TOPOGRAPHY

AS-BUILT DRAWING

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REVISIONS		
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1	April 94	DLO

SHEET NO. 1 of 1

ATTACHMENT 7

PHOTO LISTING

PHOTOS/SLIDES

PHOTO LISTING

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
1	1993	Pre-construction aerial view of scoria pit
2	07-05-94	Pre-construction highwall along county road
3	11-14-93	Pre-construction scoria mound of pit floor
4	10-05-94	Pre-construction highwall section adjacent to US 12
5	07-05-94	Pre-construction central section of south highwall
6	07-05-94	Pre-construction southwest corner of pit
7	07-05-94	Contractor's equipment - Case 580C backhoe/loader
8	07-07-94	Contractor's equipment - Cat EL200B excavator
9	07-07-94	Contractor's equipment - Cat 977 track loader
10	07-22-94	Contractor's equipment - International H80 wheel loader
11	07-08-94	Contractor's equipment - GMC-90 12 yd dump truck
12	07-13-94	Contractor's equipment - Cat D7F bulldozer
13	07-21-94	Contractor's equipment - Cat D6B bulldozer
14	07-12-94	Contractor's equipment - Cat D8 bulldozer
15	07-19-94	Contractor's equipment - International 4700 tractor with 20 yd dump body trailer
16	07-19-94	Contractor's equipment - International tractor with 20 yd dump body trailer
17	08-04-94	Contractor's equipment - Ford 8630 farm tractor
18	08-04-94	Contractor's equipment - 10 ft crimper
19	07-06-94	Removing fence and salvging posts for DSL
20	07-07-94	Clearing trees and grubbing roots
21	07-06-94	Cutting trees into 4'length
22	07-07-94	Tree limbs stacked for chipping but eventually get hauled to county landfill
23	07-11-94	Loading trees for transport

MILES CITY SCORIA PIT PROJECT
PHOTO & SLIDE DESCRIPTIONS

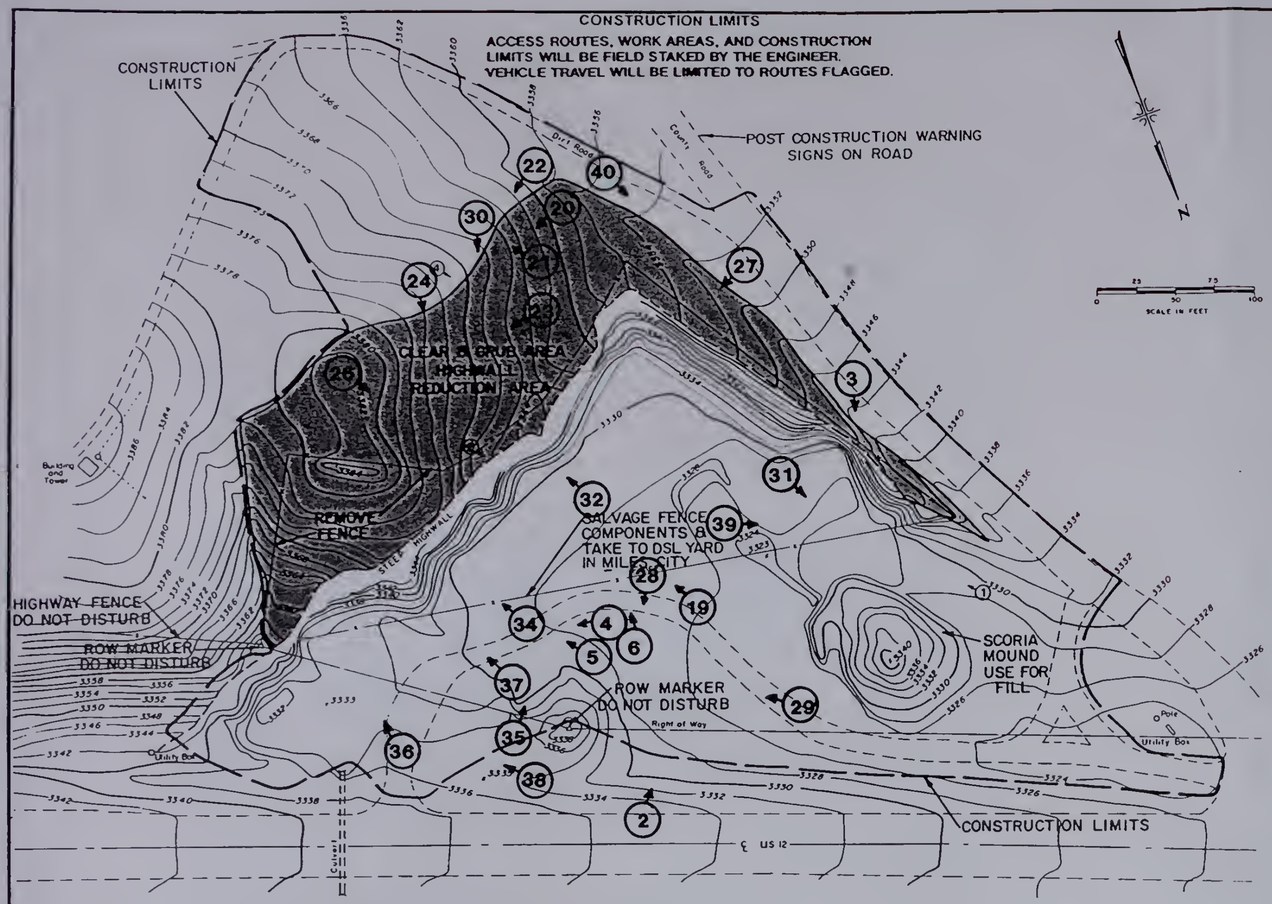
ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
24	07-08-94	Clearing vegetation
25	07-15-94	Caution sign of highway
26	07-08-94	Stripping coversoil with track loader
27	07-08-94	Loading soil into dump truck with excavator
28	07-11-94	Dumping coversoil into stockpile
29	07-13-94	Coversoil stockpile
30	07-15-94	Hhighwall cleared and stripped
31	07-12-94	Leveling scoria mound on pit floor with D-8 dozer
32	07-14-94	Starting highwall reduction on east end
33	07-14-94	D-7 working filling and grading highwall along county road
34	07-14-94	Working east highwall
35	07-14-94	Highwall reduction on southwest corner of pit
36	07-15-94	D-7 & D-8 working highwall area adjacent to US 12
37	07-19-94	D-7 reducting highwall
38	07-20-94	Blending slope into Us 12 road cut
39	07-21-94	Slope work along county road with D-6
40	07-21-94	Looking at regraded slope along county road
41	07-21-94	Highwall reduction completed southwest corner
42	07-21-94	Highwall reduction completed east end
43	07-20-94	Delivering steer compost
44	07-21-94	Stockpiling steer compost
45	07-26-94	Mixing steer compost and coversoil
46	07-21-94	Coversoil stockpile and regraded area along county road
47	07-13-94	Material for top dressing salvaged from scoria pile on pit floor
48	07-22-94	Dressing regraded slopes with material salvaged from scoria pile

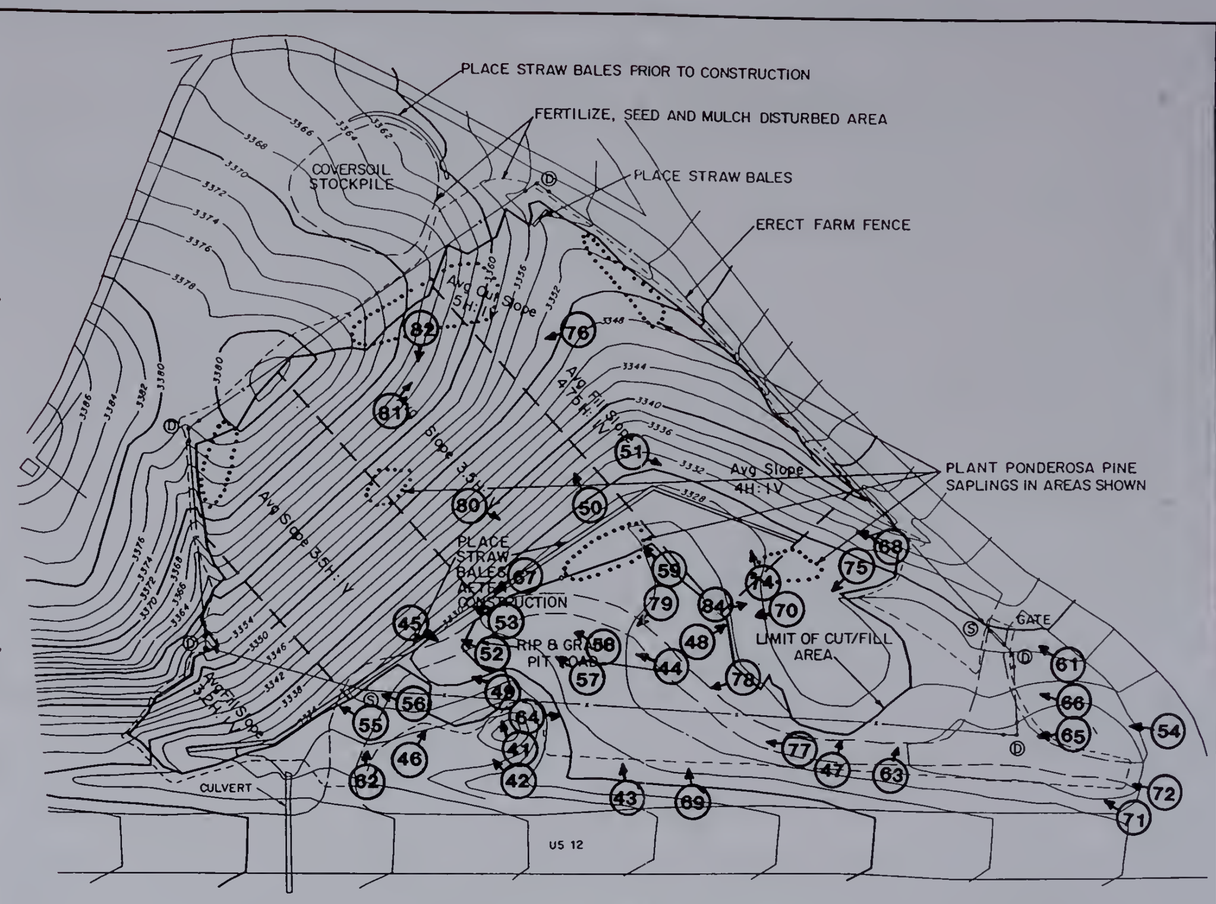
MILES CITY SCORIA PIT PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
49	07-21-94	Spreading coversoil on regraded slope adjacent to US 12
50	07-25-94	Spreading cover soil with wheel loader
51	07-26-94	Spreading compost and cover soil mixture
52	07-27-94	Mixing and spreading cover soil and steer compost
53	07-28-94	East end of scoria pit dressed with coversoil mixture
54	07-28-94	West end of scoria pit dressed with coversoil mixture
55	08-03-94	Spreading straw mulch on corner adjacent to US 12 road cut
56	08-03-94	Corner adjacent to road cut tracked and/or crimped
57	08-04-94	Spreading straw mulch
58	08-04-94	Mulch spread over site
59	08-04-94	Crimping mulch
60	08-04-94	Crimped mulch
61	08-01-94	Installing corner panel
62	08-01-94	Installing single panel
63	08-02-94	Installing steel fence post
64	08-04-94	Fence along US 12
65	08-04-94	Fence around finished site (east side)
66	08-04-94	fence aroung finished site (west side)
67	08-03-94	Installing straw bales for erosion control
68	08-04-94	Installing rebar in straw bales
69	08-04-94	Straw bale dike along to of reduced highwall
71	08-05-94	Spraying tactifier near county road
72	08-05-94	Spraying tactifier along US 12
73	10-26-94	Fertilizer spreader
74	10-26-94	Spreading fertilizer

MILES CITY SCORIA PIT PROJECT
PHOTO & SLIDE DESCRIPTIONS

ASSIGNED NUMBER	DATE TAKEN	SUBJECT OR COMMENTS
75	10-26-94	Seeding regraded pit floor with no-till drill seeder
76	10-26-94	Seeding regraded highwalls with no-till drill seeder
77	10-26-94	View of mulched area seed by no-till drill method
78	10-26-94	Seeded and fertilized area on pit floor look east
79	10-31-94	Ponderosa pine seedlings
80	10-31-94	Ponderosa pine seedlings planted on pit floor
81	10-31-94	Ponderosa pine seedlings planted on reclained highwall area at south end of site
82	10-31-94	Ponderosa pine seedlings planted on reclaimed slope
83	10-31-94	Ponderosa pine seedlings planted in southwest corner of site
84	10-31-94	Ponderosa pine seedlings planted in northwest corner of site


CONSTRUCTION LIMITS
ACCESS ROUTES, WORK AREAS, AND CONSTRUCTION LIMITS WILL BE FIELD STAKED BY THE ENGINEER. VEHICLE TRAVEL WILL BE LIMITED TO ROUTES FLAGGED.
CONSTRUCTION LIMITS
POST CONSTRUCTION WARNING SIGNS ON ROAD
CLEAR & GRUB AREA HIGHWALL REDUCTION AREA
REMOVE FENCE
STEEP HIGHWALL
HIGHWAY FENCE DO NOT DISTURB
ROW MARKER DO NOT DISTURB
SALVAGE FENCE COMPONENTS & TAKE TO DSL YARD IN MILES CITY
SCORIA MOUND USE FOR FILL
ROW MARKER DO NOT DISTURB
Right of Way
CONSTRUCTION LIMITS
Dirt Road
County Road
Utility Box
Pole
Buried Gas Line
Cable TV
Culvert
℄ US 12
N
0 25 50 75 100
SCALE IN FEET



POST RECLAMATION TOPOGRAPHY

STORM WATER POLLUTION PREVENTION AND EROSION CONTROL PLAN
BEST MANAGEMENT PRACTICES (BMP'S) FOR STORM WATER CONTROL

The Project Name is the Miles City Scoria Pit Project.

The Owner is the Department of State Lands, Reclamation Division, Abandoned Mine Reclamation Bureau, 1625 11th Avenue, Helena, Montana 59620 at telephone 1-444-2074. The project manager is Jack Yates.

This site is located in the NW¼NE¼SE¼ (Lots 2 and 3) of Section 36, T8N, R48E, Custer County. It is situated along the south side of U.S. Highway 12, 7-miles east of its junction with Interstate Highway 94. The scoria pit is visible and directly accessible from the highway.

The construction activity is described in the Work Description. The reclamation construction is estimated to disturb and reclaim 3.24 acres during this project. The purpose of this project is to reduce steep highwalls in an open-cut scoria pit, to reestablish vegetation over the disturbed area and to prevent continued unauthorized excavation of the scoria. The construction activity will include clearing timber, earthwork necessary to reduce and recontour steep highwall slopes, topsoil salvage and replacement, revegetation, tree planting, erecting a fence, and providing water for dust control.

This site is located at the head of Bensley Creek which drains into the Yellowstone River 3-miles NNE of Miles City putting the site 8.5 miles above the Yellowstone River. The disturbance area will be approximately 1000 feet from the nearest drainage channel on Bensley Creek which runs intermittently in this area. However, runoff is not expected to leave the site since the disturbed area naturally drains to the pit floor which forms a shallow basin. Best Management Practices (BMP's) during construction to control sediment and erosion in storm runoff include: temporary stabilization practices - mulching and placing of straw bales for erosion control; and permanent stabilization practices - seeding and fertilizing (100% revegetation of the site) and tree planting in selected areas.

The estimated construction time period will be thirty (30) days from the start of on-site reclamation until final vegetation is completed and the Contractor demobilizes.

Good housekeeping for petroleum products, wastes, fertilizer and off-site tracking will be followed by the Contractor as outlined in MPDES Stormwater Discharge Permit and Erosion Control Plan. Good housekeeping chores will include as a minimum:

1. To prevent tracking of sediment off-site, prior to leaving the site, all vehicles shall be washed down on-site as determined by the Engineer at such a location as to contain all washed sediment on-site;
2. Fuel, oil, grease and other such materials shall be stored in one location in such a manner as to prevent spillage and prevent contamination of the surrounding soil. All materials shall be stored in a bermed plastic lined storage area with a capacity of 110 percent of the largest container. Absorbent material shall be available on-site for clean up of any spills; and,
3. Fertilizer shall be stored on pallets off the ground or on plastic ground covers and covered with plastic or in other such manner as to prevent spillage and washing from rain water or wind into surrounding soil.

SCORIA PIT WORK DESCRIPTION

Remove 665 feet of fence along the top of the highwall and 420 feet of fence on the pit floor. Posts and wire from the 420 foot lower section of the fence will be salvaged and delivered to the Department of State Land's storage yard in Miles City. All debris will the hauled to an approved landfill.

Clear and grub the highwall borrow area around the scoria pit. All salvageable wood will be limbed, cut into 4 foot sections, and hauled to the Paul O'Dea residence 1 mile away. All limbs and other wood debris will be chipped and scattered across the site as mulch. All non-chippable debris (roots, etc.) must be hauled to the county landfill. On-site disposal will not be allowed. There are about 40 trees on the 0.89 areas that will be cleared and grubbed with 30 of these trees being mature.

Salvage and stockpile coversoil from the cut area. Straw bales (approximately 23) will be placed around the temporary stockpile to contain runoff. After site recontouring has been completed, the coversoil from the cut area will be spread evenly over the regraded slopes. Based on an average 8 inch recovery depth, 950 cubic yards of coversoil will be recovered, stockpiled, and replaced.

Reduce the highwall slopes by cutting and tilling along the highwall and regrading the disturbed area. Recontour to the plan shown on the Post Reclamation Topography view of the pit. Approximately 8450 cubic yards of material will be cut from the top of the highwall. An additional 1100 cubic yards of till material will be excavated from the mound of material on the pit floor. Total till requirements are estimated to be 9550 cubic yards.

All pre-existing roads within the pit area will be ripped and graded. Scarify the top 12 to 18 inches of the surface. Approximately 0.25 acres of existing road surface will be scarified in the pit floor area.

The highwall reduction area, roads, stockpile areas, and areas on the floor of the pit which lack sufficient natural vegetation will required revegetation. It is estimated that 3.24 acres will be drill seeded (71.3 lbs-pls), fertilized (300 lbs) and mulched (9720 lbs) with a grass hay or straw mulch applied at a rate of 3,000 pound per acre. The mulch shall be anchored by crimping and shall be "Montana Certified Weed Seed Free". Summer erosion control procedures will be followed if construction is performed during non-revegetation time periods (i.e. during the summer). A total of 30 Ponderosa Pine (Pinus ponderosa) seedlings will be planted in the indicated areas (with 10 in³ containerized stock being utilized).

Straw bales (approximately 112 bales) will be placed along the toe of the reclaimed highwall and 4 bales placed in the drainage course northwest of the coversoil stockpile after reclamation.

The reclaimed area will be enclosed in a Type F-4M farm fence. This type fence is a 4-strand wire fence with metal line posts. Approximate locations for fence panels and gate are shown. It is anticipated that 1420 feet of fence will be installed requiring 2 single and 5 double panels.

LEGEND

Ⓓ DOUBLE FENCE PANEL
Ⓢ SINGLE FENCE PANEL

PHOTO INDEX

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SHEET NO. 1 of 1

STOCK# PPV830-000

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STOCK * bbV830-000

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1-800-767-0777
STOCK # PPV830-000

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STOCK # 0380-000
1-800-131-0088
STOCKHAM PUMP

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STOCK# PPV850-000

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